Linear Algebra I & Math. Tutorial 1b - Fall 2024
Course information

Homepage for this course: `https://www.henrikbachmann.com/la1_2024.html`. Please check this page regularly for updates on the schedule and/or to get information on the course and the Homework.

Preliminary schedule

	Tutorial (1b)	Lecture	Preliminary lecture topic	Section
1	-	4th Oct (Fr)	Introduction & Linear systems	1
2	8th Oct (Tu)	11th Oct (Fr)	Matrices and vectors	2
3	15th Oct (Tu)	18th Oct (Fr)	Sets and functions	3
4	22nd Oct (Tu)	25th Oct (Fr)	Linear maps	4
5	29th Oct (Tu)	1st Nov (Fr)	Linear maps in geometry	5
6	5th Nov (Tu)	Video lecture	Matrix multiplication	6
7	12th Nov (Tu)	15th Nov (Fr)	The inverse of a linear map	7
8	19th Nov (Tu)	**22nd Nov (Fr)**	**Midterm exam (in the lecture)**	1-7
9	26th Nov (Tu)	29th Nov (Fr)	Subspaces, Kernel & Image	8
10	3th Dec (Tu)	6th Dec (Fr)	Linear indepedence & Bases I	9,10
11	10th Dec (Tu)	13th Dec (Fr)	Bases II & Dimension	10
12	17th Dec (Tu)	20th Dec (Fr)	Coordinates, 🌲 Christmath challenge 🌲	11
13	24th Dec (Tu)	27th Dec (Fr)	Coordinates	11
14	-	10th Jan (Fr)	Orthogonal bases	12
15	14th Jan (Tu)	-	Orthogonal projection	13
16	21st Jan (Tu)	24th Jan (Fr)	Review	7-13
17	28th Jan (Tu)	**31st Jan (Fr)**	**Final exam (in the lecture)**	1-13

Times and venues

- All **lectures** take place in the room **C15** in the Liberal Arts and Sciences building, between 13:00 and 14:30. All **tutorials** take place in the room **A407** in Science building A, between 13:00 and 13:45. (From 13:45 there will be the Calculus tutorial in the same room)
- Before the midterm and final exams, I offer question sessions in Zoom. We will decide together on the day and time for this.

Contact

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Please feel free to contact me at any time via email or come directly to my office. There are no "stupid questions," and asking a lot of questions will not influence your grade in any way.

Textbook & Notes

Every student is encouraged to take his/her personal notes during the lecture and tutorial. We will provide lecture notes covering the content of Linear Algebra I & II. There also exists a reference book: Otto Bretscher: *Linear Algebra with Applications*, 4th edition, Pearson 2009. (available at the Central and Science libraries). You will not need to get this book, but it contains a lot of practice Exercises.

Examination

The examination consists of a **midterm exam** and a **final exam**, together with **homework**.

- The midterm exam is held on the 22nd of November, 2024, and the final exam is on the 31st of January, 2025. Both will take place in the lecture room C15 during the usual lecture time.
- **Homework :** There will be a number of homework assignments during the course. Collaboration is encouraged, but solutions must be written and handed in individually. You can write down your solutions by hand (paper, tablet) **or** by computer (Latex only. No word!). Write your name, the homework number and the course name on the first page of your solution. Create **one pdf-file** (for example, by using a scanner app on your phone) and submit it before the deadline ends in **TACT** at the corresponding Assignment. Use exactly the following format as a filename:

  "**Familyname_Givenname_LA1_HWX.pdf**",

  where X stands for the number of the Homework. We will remove points if you do not follow these simple rules.
- **Repeat exam:** There will be a repeat exam during the winter vacation for those who failed the ordinary examination. This will take place somewhere in March 2025.
- **Cheating & Sharing homework:** Please be aware that the professor can easily recognize solutions generated by ChatGPT and similar tools, or copied from other students. For your own benefit, do not share your solutions with others before the deadline. Instead, support your peers by explaining the material. While discussions about the homework are highly encouraged, there is a significant difference between engaging in discussions and copying entire solutions. Even if you are an A+ student, you risk losing any potential future support from the professor if it is discovered that you have shared your homework with others before the deadline.

Grading

A total score T (0–100 %) is calculated as the weighted average of the percentages obtained from the homework H (0–100 %), midterm exam M (0–100 %) and final exam F (0–100 %) as follows

$$T = \alpha_H H + \alpha_M M + \alpha_F F\,.$$

Here the weights $\alpha_H, \alpha_M, \alpha_F$ can be determined from the following information:

A student who ..

1. .. got 70% in the Homework, 70% in the midterm, and 75% in the final, gets a total score of 72%.
2. .. got 80% in the Homework, 80% in the midterm, and 85% in the final, gets a total score of 82%.
3. .. got 100% in the Homework, 80% in the midterm, and 95% in the final, gets a total score of 92%.

What are the weights $\alpha_H, \alpha_M, \alpha_F$?

The total score will be used to determine a grade A+, A, B, C, C-, or F. (The exact grading scheme will be determined after the final exam). This grade will be the final grade for **both** "Linear Algebra I" and "Math. Tutorial 1b". If you plan to just take one of these courses, please contact me (This is possible.).